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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|------------------------------------|------------------|
| 10/716,651 | 11/19/2003 | Nidal A. Ghizawi | H0006508 | 7664 |
| 7590 | 09/09/2005 | | EXAMINER VERDIER, CHRISTOPHER M | |
| Ephraim Starr Division General Counsel Honeywell International Inc. 23326 Hawthorne Boulevard, Suite #200 Torrance, CA 90505 | | | ART UNIT | PAPER NUMBER |
| | | | 3745 | |

DATE MAILED: 09/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/716,651

Applicant(s)

GHIZAWI, NIDAL A.

Examiner

Christopher Verdier

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 16-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>2-24-04, 6-23-05</u> . | 6) <input type="checkbox"/> Other: ____. |

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-15, drawn to a rotor and a rotary apparatus, classified in class 415, subclass 164.
- II. Claims 16-21, drawn to a method of manufacturing a rotor structure, classified in class 29, subclass 889.23.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product as claimed can be made by another and materially different process such as casting.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

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Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

During a telephone conversation with John Christopher James on August 25, 2005, a provisional election was made without traverse to prosecute the invention of Group I, claims 1-15. Affirmation of this election must be made by applicant in replying to this Office action. Claims 16-21 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the first edge of the blade defining a nonlinear profile in radial-axial projection (claims 6 and 14) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "60".

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet,

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even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities: Appropriate correction is required.

There is no brief summary of the invention.

On page 6, line 3, “tangential” should be changed to -- perpendicular --.

Examiner’s Suggestions to Claim Language

The following are suggestions to improve the clarity and precision of the claims:

In claim 8, line 5, -- the -- may be inserted after “of”.

In claim 11, line 3, -- the -- may be inserted after “of”.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 4-8, and 13-15 are rejected under 35 U.S.C. 102(b) as being anticipated by McMahan 2,392,858. Note the rotor configured to rotate with the flow of gas through a housing (note that the rotor is used in a centrifugal compressor of superchargers for aircraft, which inherently have a housing), the rotor comprising a body portion 1 configured to rotate about an axis, and a plurality of blades 3 extending radially outward from the body portion, each blade defining a first edge 5 and a second edge 6, the first edge extending generally radially and the second edge extending generally axially, wherein the second edge of each blade is a trailing edge of the blade and defines a nonlinear profile in radial-axial projection. Concerning claim 2, which recites the rotor being configured to be rotated proximate to a plurality of vanes in the housing, this is a recitation of intended use. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. The rotor is inherently configured to be rotated proximate to the plural vanes in the housing, since it is an annular rotor. Concerning claim 4, the rotor is a compressor wheel which is inherently connected to a shaft near the hub, because the rotor is used in the compressor and must have a shaft in order to rotate.

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The second edge defines a concave profile in radial-axial-projection, and the first edge defines a nonlinear profile in radial-axial projection. All of the blades are substantially similar. Also disclosed is a rotary apparatus configured to circulate a gas, comprising the housing which inherently has an inlet and outlet to function as the compressor of the supercharger, and the rotor is configured to rotate with the flow of gas through the housing.

Claims 1-2, 4-9, and 12-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Nagaoka 5,595,473 (figure 6). Note the rotor configured to rotate with the flow of gas through a housing 1, the rotor comprising a body portion 3 configured to rotate about an axis, and a plurality of blades 5 extending radially outward from the body portion, each blade defining an unnumbered first edge and a second edge 7, the first edge extending generally radially and the second edge extending generally axially, wherein the second edge of each blade is a trailing edge of the blade and defines a nonlinear profile in radial-axial projection. The rotor is configured to be rotated proximate to a plurality of vanes 6 in the housing. The rotor is a compressor wheel which is connected to a shaft 2. The second edge defines a concave profile 7a, 7b in radial-axial-projection, and the first edge defines a nonlinear profile in radial-axial projection. All of the blades are inherently substantially similar. Also disclosed is a rotary apparatus configured to circulate a gas, comprising the housing which has an unnumbered inlet and an outlet near 6, and the rotor is configured to rotate with the flow of gas through the housing. Plural vanes 6 are disposed at circumferentially incremental locations in the housing radially outward from the second end of the blades such that the blades are subject to cyclically varying aerodynamic forces as the blades pass in proximity to the vanes during rotation of the rotor, thereby cyclically

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stressing the blades. The housing defines a diffuser near 6 radially outward from the rotor, the rotor being a compressor wheel connected to the shaft and configured to be rotated by the shaft to compress the gas in the housing and deliver the gas through the outlet to the diffuser.

Claims 1-3, 7-11, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Patent Application Publication 11-190,201 (figures 1-5 and 7). Note the rotor configured to rotate with the flow of gas through a housing 1, the rotor comprising a body portion 3 configured to rotate about an axis, and a plurality of blades 3a extending radially outward from the body portion, each blade defining an unnumbered first edge and a second edge 3b/3c, the first edge extending generally radially and the second edge extending generally axially, wherein the second edge of each blade is a leading edge of the blade and defines a nonlinear profile in radial-axial projection. The rotor is configured to be rotated proximate to a plurality of vanes c in the housing. The rotor is a turbine wheel which is connected to a shaft 2. All of the blades are inherently substantially similar. Also disclosed is a rotary apparatus configured to circulate a gas, comprising the housing which has an inlet 4 and an outlet 5, and the rotor is configured to rotate with the flow of gas through the housing. Plural vanes c are disposed at circumferentially incremental locations in the housing radially outward from the second end of the blades such that the blades are subject to cyclically varying aerodynamic forces as the blades pass in proximity to the vanes during rotation of the rotor, thereby cyclically stressing the blades, with the vanes being adjustable to control the flow of the gas through the housing. The housing defines the inlet 4 radially outward from the rotor, the rotor being a

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turbine wheel connected to the shaft 2 and configured to be rotated by the circulation of the gas through the housing and rotate the shaft.

Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Friberg, Osako, Higashimori, Warman, German Patent 1,016,888, and Soviet Union Patent 373,438 are cited to show various impellers having axially extending edges that define a nonlinear profile in radial-axial projection. These references could also have been applied as they anticipate at least claim 1, but are not applied at this time to avoid multiple rejections.

United Kingdom Patent 636,290 is cited to show a compressor impeller with a non-linear radial leading edge.

Leicht is cited to show a radial flow turbine with adjustable vanes.

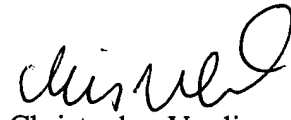
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (571) 272-4824. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C.V.
September 1, 2005



Christopher Verdier
Primary Examiner
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